

Seattle Permits

— part of a multi-departmental City of Seattle series on getting a permit

Grading Regulations in Seattle

August 2003

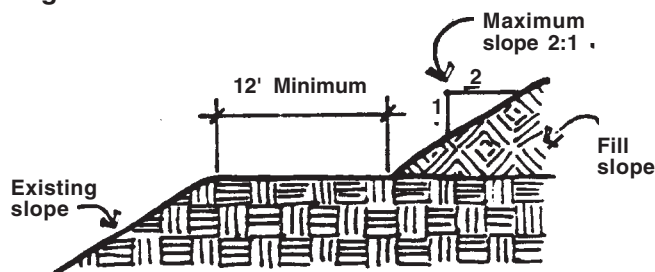
Both permanent and temporary movement of earth on development sites is regulated by Seattle's Stormwater, Grading and Drainage Control Code (SGDC). This regulation—Chapters 22.800-22.808 of the Seattle Municipal Code—protects the graded site and adjoining public and private properties, preserves natural drainage patterns and watercourses, and controls pollution.

All grading activity, whether or not it requires a permit or approval from the City, must comply with the provisions of the SGDC. Separate grading permits issued by the Seattle Department of Planning and Development (DPD) are required for work on private property when the work is not associated with a building permit. When grading is associated with a building permit, grading review and approval become a component of the building permit and a separate grading permit is not required. Grading review takes place only when the thresholds referred to in this Client Assistance Memo (CAM) are exceeded.

DPD administers the grading and drainage provisions of the SGDC for work on private property when part of a building or grading permit.

DPD also administers side sewer permits and inspections for side sewers and service drains, including associated land disturbance as of January of 2003.

Figure 1



GENERAL STANDARDS

In general, final graded slopes must be no steeper than is safe for the intended use, and no steeper than two horizontal to one vertical. Ground must be prepared prior to placement of fill to ensure stability. The base edge of any fill must be more than 12 feet horizontally from the top edge of any existing slope or planned cut slope (see **Figure 1**). Sloping fill may not be placed on top of slopes which are steeper than one and one-half horizontal to one vertical. Subsurface drainage must be provided on cut and fill slopes when necessary for stability. To vary from these standards, a code alternate must be prepared by the applicant's civil/geotechnical engineer and approved by DPD as meeting the standards of SGDC 22.808.010.

The code includes specific provisions regarding protection of adjoining property (including conditions under which encroachment of construction activities is possible), erosion control, fencing, boundary designation during grading activity, and regulations affecting temporary stockpiling of material during grading or exploratory excavations. DPD Director's Rule 16-2000, "Construction Stormwater Control Technical Requirements Manual," specifies the best management practices (BMPs) for meeting these requirements.

The code specifies when grading may take place without a permit or approval from DPD. Exempt activities, including most projects in the right-of-way, other projects on publicly owned property and some utility projects, do not need permits from DPD but must comply with the standards set forth in the SGDC and may require a permit from SDOT for work in the public place. SGDC 22.804.030C lists exempt activities and SGDC 22.800.070 addresses City projects.

Thresholds for when a permit or approval is required relate to characteristics of the site and the quantity of earth movement proposed. "Site" as defined by the SGDC for grading and drainage review purposes may include two or more contiguous project sites and the work proposed within the City right-of-way. DPD may group two or more project sites together if they are under the control of the same person or persons and construction will occur at approximately the same time.

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GRADING PERMIT REQUIREMENTS

For general sites, DPD approval is required when grade changes more than three feet **and** 1) the cumulative volume of excavation, fill, dredging or other earth movement is more than 100 cubic yards (over the lifetime of the site) **or** 2) the grading will result in a slope steeper than three horizontal to one vertical.

In shoreline districts and environmentally critical areas, (excluding liquefaction zones and abandoned landfills) called “special sites,” approval is required if more than 25 cubic yards of earth will be moved. Grading is prohibited in certain environmentally critical areas; see Regulations for Environmentally Critical Areas (ECA), SMC 25.09. (For land covered by water or within 10 feet of the high water mark, any volume of earth movement requires a permit.)

A permit is required to move **any** earth on “potentially hazardous sites,” defined as existing and abandoned solid waste disposal sites and hazardous waste treatment, storage or disposal facilities.

Temporary stockpiles also need a permit if they exceed the threshold levels for the type of site, i.e. general, special or potential hazard.

A permit is **always** required for “in-place ground modification,” such as soil compaction on a liquefaction-prone site, unless the department finds the work to be insignificant.

Grading near public or private properties, as defined in the SGDC, may require financial assurance as per Section 22.808.130.

See Table 1 for a matrix that summarizes when grading approval is required for various sites and also indicates when separate SEPA review and/or a shoreline permit is required.

Application materials to be submitted to DPD for grading permits or approvals are detailed in SGDC 22.804.040. When the only grading proposed is incidental to construction and within four feet or less of the building footing, the only information required is location of temporary stockpiles, which may be shown on the plot plan.

The information listed on the attached standard correction sheet for grading may be required, depending upon the scope and nature of the project. (See **Requirements for Grading Projects** on page 3)

Table 1

THRESHOLD, IN YARDS	TYPE OF SITE			
	ECA, Except Landfill & Liquefaction	Shoreline	Potentially Hazardous	All Other Sites
0	G₁ V	G₁ SH₁	G₁	G₁
>0	F S G₅	G₂ G₅	G G₅	G₃ G₅
>25	G	G		
>100				G₄
>250		SH₂		
>500		S	S	S

Summary of Required Permits

KEY: F **Floodplain Development License** is required for grading in the floodplain or floodway of Pipers Creek, Thornton Creek, Longfellows Creek, or the Duwamish River

G **Grading permit** is required.

G₁ **Grading permit** is required for in place ground modification only, except when waived by the director.

G₂ **Grading permit** is required if grading is:
 ■ within 10' of mean high tide (saltwater)
 ■ or within 10' of mean high watermark (fresh water)
 ■ or on any land covered by water.

G₃ **Grading permit** is required if:
 ■ grade change is >3'
 ■ and finish slope is >3:1, horizontal to vertical

G₄ **Grading permit** is required if grade change is >3'

G₅ **Grading permit** is required if:
 ■ the project is adjacent to a public place (streets, alleys, or other rights of way)
 ■ and the project requires a cut that falls below a 1:1 sloped line from the boundary of the public place
 ■ and the total depth of the cut is >4'.

S **SEPA review** is required if:
 ■ non-incidental grading exceeds the threshold
 ■ and there is an underlying permit required
 ■ and there is not a DNR class 1 or 2 forestry permit for the project

SH₁ **Shoreline permit** for commercial uses is required if
 ■ the cost of the work exceeds \$2500
 ■ and the work is not exempted by the director as normal maintenance work.

SH₂ **Shoreline permit** for single family residential uses is required if non-incidental grading exceeds the threshold

V **Vegetation and Tree Removal permit** is required unless the removal is shown as part of an issued building or grading permit.

For most projects, submittal requirements will include a general vicinity map, legal description of the site, a topographical map at two-foot contours showing original and finished grade and property lines, cross sections, a drainage control plan and a plot plan including information about improvements to the site, drainage patterns and drainage control facilities, trees and vegetation on the site and location of designated environmentally critical areas. The information regarding tree and vegetation shall identify all existing trees including their species, caliber, and the proposed disturbance.

A small project construction stormwater control plan will be required of projects of less than 5,000 square feet of new or replaced impervious surface or less than one (1) acre of land disturbing activity. The plan outlines the temporary erosion and sediment control measures associated with proposed grading activities. Sites greater than 5,000 square feet of new or replaced impervious surface of greater than one (1) acre of land disturbance area will require a temporary erosion and sediment control plan prepared by a licensed civil engineer.

Grading approvals or permits issued by DPD will often include conditions such as limiting the work to specific seasons or weather conditions, sequencing of work, special inspections, conformance to soils engineer's recommendations, best management practices, vegetation and long-term maintenance of the site.

Work in environmentally critical areas will typically be subject to these and possibly other conditions.

Grading permits are valid for 18 months and may be renewed for up to 18 months unless the department specifies a shorter or non-renewable time frame at issuance. Inspection by DPD is required for final approval of a grading permit; final approval of a permit involving grading requires an inspector's verification that the grading has been performed per plan, including submittal of any required special inspection reports.

REQUIREMENTS FOR GRADING PROJECTS

The following list includes common requirements for projects submitted to the department that include grading. All of this information is not required for all projects; more complex projects will require more information. The applicant should rely on his/her design professional with regard to the information required, and may discuss requirements with DPD permit specialists.

Plan Preparation

1. Provide general vicinity map and legal description of the site per SGDC 22.804.040(B)2a.
2. Provide a plan legend.
3. Provide the following information per SGDC 22.804.040(2)b:
 - provide a north arrow
 - show location of all buildings
 - show all easements and provide easement language
 - show utilities and other improvements where work is to be performed
 - show approximate location of structures and improvements on adjacent property
 - identify Environmentally Critical Areas (ECA)
 - show location of existing and planned, temporary and permanent, drainage control facilities
 - show the location of existing and proposed drainage discharge points, watercourses, drainage patterns, and areas of standing water
 - approximate location, type and size of trees and other vegetation on the site
 - identify trees and vegetation to be removed and the minimum distance between tree trunks and the nearest excavation
 - identify areas where equipment traffic will be permitted and excluded
4. Specify plan scale.
5. Identify past industrial or manufacturing uses or hazardous materials treatment, disposal, or storage that have occurred on the site.
6. Specify immediate and long term intended use of property.
7. Calculate the volume of cut and fill and specify that information on the coversheet.
8. Provide a topographic map that includes the following information:
 - existing and proposed grade contours with contours at maximum 2 foot intervals
 - extend contours beyond property lines to show adjacent topography affecting site and how proposed grading may effect adjacent property
 - specify location of any existing or proposed buildings or structures, easements, and utilities on the property where the work is to be performed

- specify the approximate location of any buildings or structures on adjacent properties
 - show the location of all temporary stockpiles and excavations
9. Provide cross sections of the site and immediate adjacent properties showing existing and proposed grades.
 10. Specify the location and volumes of temporary stockpiling and/or excavations. Temporary stockpiles shall not exceed 10 feet in height nor have slopes greater than 1:1, horizontal to vertical.
 11. Specify the location of the excavated soil's disposal site:
 - if the disposal site is within the city of Seattle limits, provide the grading permit number or grading permit application number.
 - if the disposal site is unknown, provide a letter that requests a postponement of the identification of the disposal site and states that the disposal site will be identified to the building inspector prior to excavation.
 12. Specify composition of fill material, including type of material and size and percentage of components. See SGDC 22.804.050.I for limitations on materials.
 13. Specify compaction standards for structural or compacted fill including:
 - characteristics of the fill material used
 - degree of compaction
 - moisture content
 - method of placement
 - requirements for water retention, drainage control, and erosion control
 14. Specify the following minimum design criteria:
 - soil bearing pressure
 - equivalent fluid pressure
 - passive pressure
 - coefficient of friction
 15. Specify maximum slope of finished grade.
 16. Specify maximum slope of temporary cuts.
 17. Specify all areas where equipment traffic is to be excluded. Area is to be staked off per SGDC 22.804.120.
 18. Show location of fencing and lockable gate as required per SGDC 22.804.130.
 19. Provide an excavation plan.
 20. Provide a shoring plan.
 21. If permanent site drainage is included in the project, provide a drainage control plan as detailed in the SGDC. If the developmental area is over 5,000 square feet of new or replaced impervious surface or one (1) acre of land disturbance activity, the drainage control plan must be developed by a licensed engineer.
 22. Provide a detailed sediment and erosion control plan to be used to minimize sediment or other pollution from leaving the site during and after construction and to protect cut and fill slopes and cleared areas from erosion.
 23. Provide a time schedule of operations including but not limited to clearing, restoration of top soil and vegetative cover, implementation of erosion and stormwater control, grading and construction improvements.
 24. Provide a cross section of the rockery and specify the following:
 - maximum height of the rockery
 - vertical slope of the rockery face
 - slope of grade above rockery
 - indicate any existing or potential surcharges on the rockery including adjacent structures, roadways, driveways, etc.
 - rock size and approximate weight
 - type and size of drainage material
 - minimum thickness of drainage material layer behind rockery
 - impervious layer at top of drainage layer
 - minimum layer at top of drainage layer
 - minimum depth below grade of base course
 25. Provide recommendations from a geotechnical engineer regarding the use of this rockery as a retaining structure. A rockery is to be designed as a retaining structure when:
 - it is supporting fill material
 - the slope being supported is at a 3:8 vertical to horizontal slope or greater (see DPD CAM #321, "Rockeries: Prescriptive Design and Installation Standards")
 - a surcharge is being supported, such as a driveway, roadway, structure, etc.
 26. Provide an engineered design for any rockery

exceeding 6' in height or varying from the prescriptive design standards of CAM #321.

27. Specify the following for retaining walls:

- maximum retaining wall height
- maximum height of backfill
- slope of soil above the wall
- indicate any existing or potential surcharges on the retaining wall including adjacent structures, roadways, driveways, etc.
- rebar grade and yield stresses
- rebar sizes and clearances
- sack mix and strength of concrete
- the footing cannot extend over the property line
- provide a structural section of retaining wall with the seal and signature of a registered structural engineer.

28. Specify the following for reinforced soil retaining systems:

- type of fill material
- type of facing
- vertical slope of the facing
- minimum depth below grade of base course of facing
- type of bed under the facing
- type of geogrid or other reinforcement being used
- depth of lifts between reinforcement layers
- horizontal depth of reinforcement into the slope
- indicate any existing or potential surcharges on the retaining system including adjacent structures, roadways, driveways, etc.

29. Specify the following for timber walls:

- maximum height of the wall
- size of the timbers
- horizontal and vertical spacing of the deadmen
- horizontal depth of the deadmen into the slope
- minimum depth below grade of the base course
- the timber connections
- slope of the soil above the wall
- indicate any existing or potential surcharges on the wall including adjacent structures, roadways, driveways, etc.

Special Provisions

1. Fills shall be located so that the base edge of the fill is located more than 12 feet horizontally from the top edge of an existing slope or a planned cut slope. A sloping fill shall not be placed on top of slopes which are steeper than 1.5:1, horizontal to vertical.
2. Provide a soils report from an experienced geotechnical/civil engineer that complies with the requirements of SGDC 22.804.040 and/or DPD Director's Rule 3-93.
3. The geotechnical engineer shall provide a minimum risk statement. The letter shall state that, so long as conditions stated in the soils report are satisfied, areas disturbed by construction will be stabilized, the risk of damage to the proposed development or to adjacent properties from soil instability will be minimal, and the proposed grading and development will not increase the potential for soil movement.
4. Submit a supplemental letter from the geotechnical engineer stating that he/she has reviewed the permit plans and that the plans are in accordance with his/her recommendations.
5. A geotechnical hazard covenant is required for this project per the SGDC and/or the ECA Regulations. It must be notarized and a copy of the legal description of the property, labeled "Exhibit A," must be attached.
6. This project will require special inspections by a qualified geotechnical consultant. A DPD "Geotechnical Inspection Schedule" may be attached to the permit plans.
7. Prior to construction, schedule a Pre-Construction Conference arranged jointly by the applicant with DPD geotechnical engineers, site inspector, project special inspectors and contractors.
8. For small projects, provide a completed "DPD Standard Temporary Erosion and Sedimentation Control Plan" (TESC) as applicable to the project-specific activity.
9. For projects defined as large, provide an erosion and sedimentation control plan prepared by a licensed civil engineer in state of Washington.
10. Ecology block single thickness walls are to be considered rockeries (not retaining walls) and designed to the same parameters as rockeries.
11. For development in an ECA, provide the following information as required by DPD Director's Rules 3-93 and 3-94:
 - Statement of minimal risk by geotechnical engineer

- Owner's statement of responsibility
 - Signed and notarized copy of the Buffer Covenant (form enclosed). Attach the legal description as Exhibit "A".
12. Plans show temporary excavations within a 1:1 slope of the property line. Provide one of the following:
- Engineered shoring plans meeting the recommendations of a geotechnical engineer.
 - A report by a geotechnical engineer stating temporary slope criteria and that the slope be kept within the property line.
 - Letters from the adjacent property owners giving permission for the excavation to cross onto their property.
13. Provide a shoring plan for the excavation along the public right-of-way. Please note that the shoring shall be designed so that the maximum deflection does not exceed 1". Contact Seattle's Department of Transportation (SDOT) regarding Street Use Permits and other impacts on right-of-way such as existing utilities and structures.

Other Requirements

1. Provide required screening for adjacent residential zones per SGDC 22.804.100.E.
2. Prior to issuance of the permit please provide the following financial assurance per the SGDC 22.808.130:
 - The owner or contractor is required to carry liability and property damage insurance against damage, naming the City as an additional insured. The dollar amount is commensurate with the risks as determined by DPD.
 - The owner is required to maintain a policy of general public liability insurance for a period of 10 years after finalization of the permit, naming the City as an additional insured. The dollar amount is commensurate with the risks as determined by DPD.
 - The owner or contractor shall deliver a surety bond, cash deposit, or an instrument of credit, to ensure that work will be completed in accordance with conditions of the permit.
 - The dollar amount is that deemed necessary by DPD to ensure that requirements of the permit are met. Because there is a possibility for a lengthy approval process you may want to contact DPD to discuss your options.

3. On Potentially Hazardous sites provide a copy of all applicable permit or approval applications from the appropriate regulatory agencies.

QUESTIONS?

For more information about grading approvals, permits, standards or submittal requirements for a specific project, contact DPD's Site Development staff at (206) 684-8860 or Drainage & Sewer Review staff at (206) 684-5362.

DPD's main offices are located on the 20th floor of Seattle Municipal Tower at 700 Fifth Ave.

Access to Information

Links to electronic versions of DPD **Client Assistance Memos (CAMs), Forms**, and are available on the "Publications" and "Codes" pages of our website at www.seattle.gov/dpd. Paper copies of these documents are available from our Public Resource Center, located on the 20th floor of Seattle Municipal Tower at 700 Fifth Ave. in downtown Seattle, (206) 684-8467.